

ABSTRACT OF THE DISCLOSURE

A method and apparatus is described for removing particles from an air-flow. An air-flow containing microscopic particulate matter is passed through a filter that rotates or oscillates at a high rate of speed relative to the speed of the air-flow and in a direction substantially perpendicular to the direction of the air-flow. The filter in motion impacts and thereby removes particulate matter from the air passing through it, yet the far smaller air molecules pass unimpeded through the mesh in the filter. The filter and filtration system maintain consistent operational performance despite changes in the condition of the filter and/or changes in the operational environment by adjusting the filter's speed and/or by cleaning the filter on a periodic or continuous basis. The effective life of a filter is extended, thereby increasing the period of time between filter replacements and reducing life-cycle man-power and material costs without any sacrifices in performance.